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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/522,178	03/09/2000	Toshio Inoue	0303-0420	2307

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EXAMINER	
LAO, LUN S	

ART UNIT	PAPER NUMBER
2643	

DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/522,178	INOUE ET AL.	
	Examiner	Art Unit	
	Lun-See Lao	2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 January 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,9 and 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 9-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This is response to an amendment filed on 01-14-2004. Claims 1, 3-4 6 and 9-10 have been amended and claims 7-8 has been canceled. Claims 1-6 and 9-10 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakao (US PAT 5,651,072) in view of Masao (The institute electronics, information and communication engineers).

Consider claim 1, Nakao teaches an active noise control circuit comprising:

feed-forward control means (see fig.2) for being supplied with a reference signal (R) highly correlated to noise from a noise source (engine) and generating a noise cancellation signal (3) which is out of phase to noise in the passenger compartment of a vehicle (see col.4 line 25-col.5 line 5);

canceling sound generating means (3) disposed in the passenger compartment for generating a noise canceling sound in, response to the noise cancellation signal from said feed forward control means (see col.4 line 25-col.5 line 45); and

a noise cancellation-confirming microphone (see fig.1, (7-1,7-2,7-3,7-4)) for confirming cancellation of the noise in the passenger compartment;

wherein said feed-forward control means (see fig.2) comprises means inherently for lowering the levels of output signals from said noise cancellation-confirming microphone with tile noise cancellation signal (see col.4 line 25-col.5 line 2); and

wherein said noise cancellation-confirming microphone (see fig.1, (7-1, 7-2,7-3,7-4)) is positioned in a vicinity of ears of occupants seated in the passenger compartment (col.5 line 46-col.6 line 27), but Nakao does not clearly teach a microphone disposed centrally in the width direction of the vehicle and at an antinode of an acoustic normal mode of the passenger compartment, for generating an output signal as the reference signal.

However, Masao teaches a microphone disposed centrally in the width direction of the vehicle (see fig.11, 4, microphones) and at an antinode of an acoustic normal mode of the passenger compartment, for generating an output signal as the reference signal (see page 36 right column line 14 to line 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Nakao into Masao provide a noise control system for reduing cost and improving the stability of the control.

Consider claim 2, Nakao teaches the antinode of the acoustic normal mode of the passenger compartment comprises an antinode in a primary mode or a secondary mode in a longitudinal direction of the passenger compartment (see col.5 line 3-col.6 line 62).

Consider claims 3-5, Masao teaches an active noise control circuit of the noise cancellation-confirming microphone comprises:

A plurality of noise cancellation-confirming microphone (see fig.11, 4 microphones) being positioned respectively near laterally spaced roof rails of the vehicle in confronting relationship to the ears of occupants seated in the passenger compartment (see page 36 right column line 14 to line 28); and an active noise control circuit of the noise cancellation-confirming microphone (see fig.11, 4 microphone) is positioned substantially centrally between laterally spaced roof rails of the vehicle in confronting relationship to the ear on the compartment side of an occupant seated in the passenger compartment (see page 36 right column line 14 to line 28); and an active noise control system of further comprising a microphone disposed near a central console the passenger compartment (see fig.11 one of four microphones).

Consider claim 5 Nakao teaches and a microphone (see fig.27b, (G5)) approximately disposed near a central console in the passenger compartment.

4. Claims 6 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masao (The institute electronics, information and communication engineers) in view of Mason (US PAT. 5,410,607).

Consider claims 6 and 9-10, Masao teaches an active noise control system comprising:

a microphone (see fig.11, 4 microphones) positioned centrally in the width direction of a vehicle and at an antinode of a primary or secondary acoustic normal mode of the passenger compartment of the vehicle (see page 36 right column line 14 to line 28),

canceling sound generating means (see fig.11, 2 speakers) disposed in the passenger compartment for generating a noise canceling sound;

a feedback control circuit (see fig.11 ANC control unit) for being supplied with an output signal from said microphone and generating an output signal to energize said canceling sound generating means (see page 36 right column line 14-line 28), but Masao does not clearly teach a storage box, where in said microphone and said feedback control circuit are housed together in said storage box, said feedback control circuit having an adjusting circuit for adjusting the amplitude and phase of disposed between a canceling sound generating means and the microphone, base on a transfer characteristic from said microphone to generate a noise cancellation signal which is of the same sound pressure as, but out of phase to, noise at the microphone; and the microphone is disposed beneath a front seat in the passenger compartment.

However, Mason teaches that an active noise control system is comprising a storage box (see fig.2), where in said microphone (200 (motion sensor)) and said feedback control circuit (100) are inherently housed together in said storage box (106 enclosure)(see col.4 line 60-col.5 line 60), said feedback control circuit (100) having an adjusting circuit (202, controller) for adjusting the amplitude and phase of disposed between a canceling sound generating means (104) and the microphone (200 (motion sensor)), base on a transfer characteristic from said microphone (200 (motion sensor)) to generate a noise cancellation signal which is of the same sound pressure as, but out of phase to, noise at the microphone (see col.5 lines 2-61); and the storage box has holes (fig.7a) defined therein for the passage of noise in the passenger compartment (see col.9 line 30-col.10 line 30).

Therefore, it would have been obvious to one of ordinary skill in the art to utilize the storage box, the microphone and the feedback control circuit as taught by Mason into Masao. This would have positioned the apparatus in a location attached to the vibration surface, such that the intrusion into the desired quiet zone is minimized. This is advantageous in confined areas, such as cabins, where space is a premium.

It is noted that while Masao does not teach that the storage box is disposed beneath a front seat in the passenger compartment, Masao does indicate that some components of the noise control system, such as the speaker, are placed beneath a front seat in the passenger compartment (see fig.11 (speakers)). Therefore it would have been obvious to dispose the storage box, which is a component of the active noise control system in the combined teaching of Masao and Mason, beneath a front seat in the passenger compartment.

Response to Arguments

5. Applicant's arguments with respect to claims 1-6 and 9-10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (703) 305-2259 The examiner can normally be reached on Monday-Friday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (703) 305-4708.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (703) 306-0377.

Lao,Lun-See
Patent Examiner

US Patent and Trademark Office
Crystal Park 2
(703) 305-2259

DUC NGUYEN
PRIMARY EXAMINER